The central benefits of R analysis include (a) maintenance of state across sessions (b) rapid development of customized software and (c) the extensive collection of community available R packages. Unfortunately, the full benefits of R are often unavailable in web-deployment of R analysis. To bring the full power of R to end users we have created Rho – an integrated system for web deployment of R analyses. Our system is servlet based, supports interactive graphics, and can maintain user state. Because we maintain state across sessions, the system supports “dual use” – where the same analysis objects can be manipulated in “pure R” (through the command line interpreter) as well as “automated R” over the web interface. A single servlet instance can support a variety of applications and concurrent users. The system manages projects, users and data sources. The implementation of these enterprise scale features is mirrored within R itself as well as through the web. The system extends the R compilation machinery to allow immediate deployment of R packages. Rho is currently in use through a number of web applications related to bioinformatics, yet the infrastructure is general enough to support any R package. We have experimented with many client interfaces including java applets, SOAP services, and pure HTML. We present a sample application based on microarray analysis and a web-service for analysis of genelist content.